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Right Upper Quadrant Pain in a World Explorer

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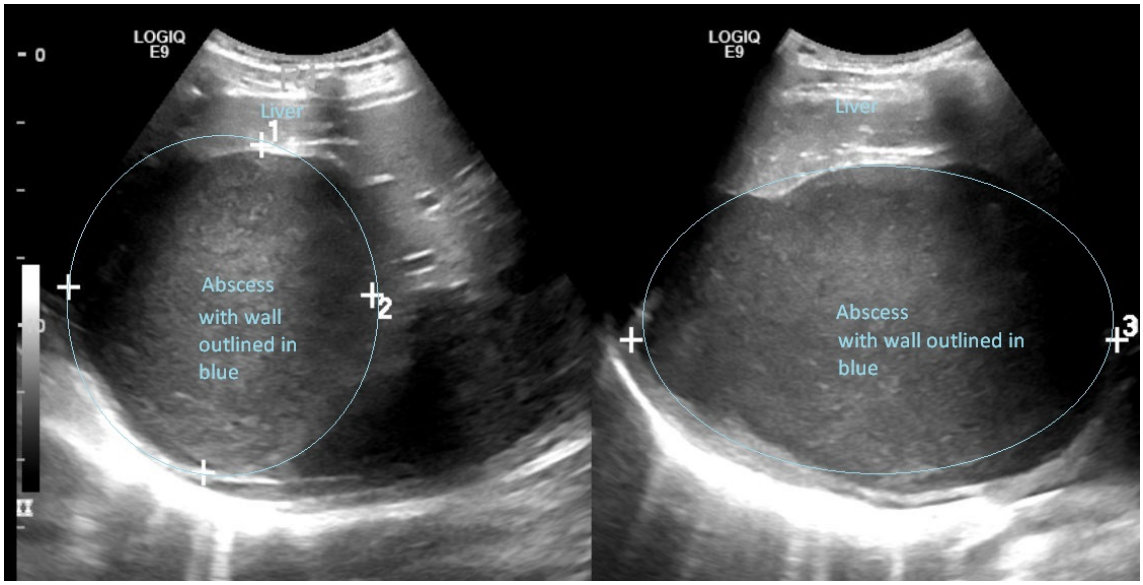
ABSTRACT:

Although rare in the developed world, amebic infections are common worldwide and represent a challenging and often overlooked diagnosis. In this case, an amebic liver abscess was discovered in a 29-year-old male who presented to the emergency department (ED) complaining of right upper quadrant abdominal pain, weight loss, non-bilious/non-bloody vomiting, and diarrhea for three months. He recently traveled to India and Mexico. Point-of-care ultrasound discovered a liver mass and computed tomography (CT) confirmed the presence of a liver abscess. The case highlights the usefulness of ultrasound as an initial diagnostic tool, the importance of careful travel history in patients with suspected infectious diseases, and the initial provision of broad-spectrum coverage for bacterial and amebic pathogens for liver abscesses until the pathogen has been identified.

Topics:

Amebic liver abscess, bedside ultrasound, travel medicine, infectious disease



Video Link: https://youtu.be/I57IWPdclmM

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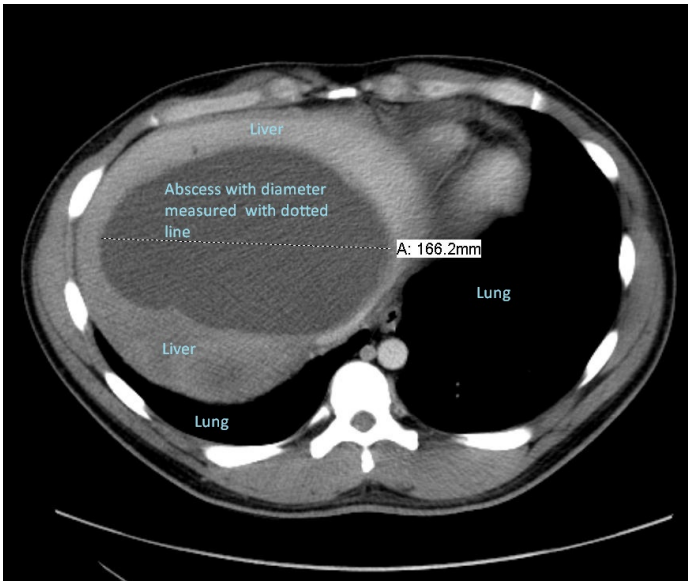

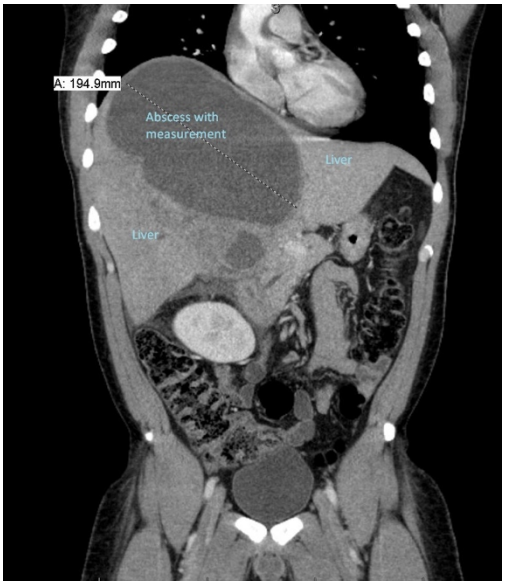

Introduction:
This is a case of a 29-year-old male with recent travel to India and Mexico presenting with right upper quadrant pain, weight loss, diarrhea and nausea with non-bilious/non-bloody vomiting for three months after having a negative outpatient workup for infectious diarrhea and hepatitis. His abdominal pain intensified over two weeks and localized to his right upper abdomen. He also endorsed chills, night sweats, and a 15-pound weight loss over three months. Past medical history included gastroesophageal reflux disease. He traveled to India 4 months and Mexico 5 months prior to presentation. He reported traveler's diarrhea that had improved on returning to the United States. However, over the last three months, he would frequently get diarrheal episodes that would resolve without treatment. He presented to the ED for further evaluation.

Significant findings:
The ultrasound images show the abscess, which is a large, circular, hypoechoic mass outlined in blue in the center of the image. The abscess is surrounded by the hyperechoic and heterogeneous liver tissue.

For better delineation of the abscess, a CT was ordered. The axial CT scan image shows the liver abscess, which appears as a hypodense, ovoid, intrahepatic fluid collection within the liver parenchyma. The size of the abscess has been annotated with a dotted line measuring 194.9 mm x 166.2 mm.

Patient course:
His laboratory evaluation demonstrated slight elevation of alanine transaminase (ALT) and aspartate transaminase (AST), 77 and 91 respectively. His bedside ultrasound did not display gallstones or pericholecystic fluid. The common bile duct was normal in size. A large hypoechoic mass was observed in the liver. Computed tomography confirmed a large abscess. The patient received broad-spectrum antibiotics including vancomycin and piperacillin-tazobactam to cover for pyogenic causes and metronidazole to treat amebic abscesses. Interventional radiology (IR) drainage resulted in 700 mL of "anchovy paste" fluid and a 14 French pigtail catheter was placed during the procedure. Cultures and blood serologies confirmed the presence of *Entamoeba histolytica*. Malaria panels were negative. The discharge treatment plan included two weeks of metronidazole followed by one week of intraluminal paromomycin with drain removal after. The patient's course was complicated by requiring placement of a second pigtail catheter by IR after the first catheter stopped draining and repeat CT scan showed residual abscess. After intraluminal paromomycin was completed, a repeat CT scan showed resolution of the abscess and the patient's liver enzymes normalized.

Discussion:
Entamoeba histolytica is a protozoan, which infects humans via the fecal-oral route typically through contaminated food or water, creating gastrointestinal and extraintestinal complications.[1] *Entamoeba* most commonly causes significant morbidity and mortality in developing countries where the sanitation systems are less developed. Mexico, India, parts of Africa and areas of South America have the highest rates of infection.[2] In this case report, the patient had traveled to both Mexico and India in the months preceding the onset of his

symptoms. Nearly forty million people worldwide are thought to become infected with *Entamoeba* annually.[1] Active infection kills approximately 100,000 people worldwide every year.[1] Infection can range from asymptomatic colonization to full-blown amebiasis as seen in this case report. He displayed symptoms of active amebiasis including abdominal pain associated with non-bilious/non-bloody vomiting, diarrhea and systemic complaints such as fever, chills, and weight loss. Liver abscesses are the most common non-intestinal presentation of infection and occur in less than one percent of infections.[1] Infections are seen more commonly in men than in women. Symptoms of right upper quadrant pain, diarrhea, and systemic complaints plus emigration from or recent travel to an endemic area should make physicians consider *Entamoeba* as a potential diagnosis. Amebic liver abscesses may be visualized on a variety of radiology techniques including CT, magnetic resonance imaging, and ultrasound. Ultrasound is readily available in the ED and is 95% sensitive in detecting amebic liver abscesses.[1] CT is even more sensitive than ultrasound for detecting liver abscesses, but is not specific.[1] Chest radiograph (CXR) is abnormal in approximately 50% of patients with liver abscess. [1] The CXR may demonstrate either an elevation of the right hemidiaphragm from hepatomegaly or a reactive pleural effusion.[1]

Diagnosis is confirmed with serology testing for *E. histolytica*. Until fluid cultures for amebic serology have resulted, patients with liver abscesses should be treated for both pyogenic and amebic etiologies. In the developed world, pyogenic liver abscesses are more common than amebic abscesses and up to 20% of amebic abscesses can be complicated by a secondary bacterial infection.[3] Patients with amebic abscesses compared to pyogenic abscesses tend to be younger, male sex, have endemic travel history, negative blood cultures, positive amebic serology, and have single abscesses more often than multiple abscesses.[4]

Placement of catheters for abscess drainage is superior to needle aspiration in terms of hospital stay, time to resolution, and shrinking the abscess cavity size.[3] Anchovy-paste consistency and color of the fluid is pathognomonic for amebic liver abscesses.[5] Metronidazole is the recommended agent against active infection followed by an intraluminal agent such as paromomycin to cure the patient of the carrier state.[6]

Overall, the patient in this study had several classic historical features and symptoms for *Entamoeba* and received the recommended medical and catheter-directed treatment. This case is a good example of a typical presentation for *Entamoeba* infection in the developed world.

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